WTCI-23-P

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EMERY ROTH & SONS
850 THIRD AVENUE
NEW YORK, N. Y. 10022

November 23, 1971

Mr. Malcolm F. Levy
Chief, Planning & Construction
World Trade Center
The Port of New York Authority
111 Eighth Avenue
New York, N. Y. 10011

Re: Building Code

Dear Mal:

We have recently received a number of requests for interpretation of requirements of the New York City Building Code as it applies to the World Trade Center. We think it might be advisable at this time to review some of these questions.

The Concourse Level serves as an exit passageway for some of the stairs serving the subgrade area as well as some of the interior stairs of the North and South Plaza Buildings. In addition, there are access stairs from the subways and Path terminal. The total capacity of exit stairs and escalators leading to the concourse level is about 4610 persons. Exit doors leading to Liberty, West and Vesey streets have a total capacity of 5190 persons as means of egress. We have included in this exit count the use of escalators leading to Plaza level exits which is permitted by Code provided that they move in direction of exit travel or stop simultaneously with detection of fire. We have also included a count of 480 persons that might use the passageway alongside the IND subway platform which connects to stairs leading to Church Street and 150 persons that might use the stairs passing underneath the IRT subway. Since information is not available at the present time concerning proposed passageways under the streets at Liberty and Church and Vesey and Church, no allowance was made for this possibility.

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...presently designed, then, there is sufficient exit capacity for the calculated number of persons required to use the Concourse Level as a means of egress. Since there is likely to be a much greater number of persons using the concourse as visitors or shoppers, we recommend that additional doors be provided for access to the street. There can be added to the present location of exits to accommodate the greater number of persons that might be in the area. We suggest that this be reviewed by your safety and insurance staff and our office be notified of their decision.

The design of the Concourse Level was predicated on the decision by PDC that the galleria passages be considered as an underground street thereby permitting unlimited use of glass for the storefronts. We have in the past obtained a variance from the Board of Standards and Appeals for a reasonably similar situation at 55 Water Street. In that case, unlimited glass storefronts were permitted on a concourse level provided that the following protective devices were installed in the retail space:

a. Heat rate-of-rise detectors at intervals not exceeding 50 feet along the glass partitions.

b. Smoke detectors located at the centerline of all entrance doors to the retail space.

c. A water-curtain sprinkler system with sprinkler heads 4 feet on center along the glass partition.

d. Sprinkler system throughout the retail space.

e. A 1 1/2 hour rated automatic rolling steel shutter closures along the glass walls.

f. All decorative items in the corridors to be incombustible.

g. Alarms activated at a fixed temperature between 130° and 150° with a rate of rise control of 15° per minute. The alarms are keyed into a continuously manned control center.

If the foregoing protection is provided, the Concourse Level should meet the fire safety requirements of the building code.

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With regard to exit requirements, however, the Code permits a maximum distance of 200 feet in a sprinklered space of Mercantile Classification from the most remote point to the center of a door opening to the exterior, a vertical exit, an interior stair, an exit passageway or a horizontal exit. To meet this requirement, additional means of egress will have to be provided. These can be 2 hour rated passageways leading from the Galleries to the exterior or additional stairs going up to the Plaza Level and exiting through the Plaza Buildings. This determination should be made in the design and layout of the retail tenant spaces.

In addition, the restaurants on this level fall into the more restrictive occupancy classification of Assembly Group A-2. This classification requires a primary and secondary exit within 85 feet and 125 feet, respectively, from every point. We suggest that this provision be met by additional vertical stairs going up to and exiting to the Plaza from the northeast and southeast Plaza Buildings.

The Plaza level of the tower serves as a street floor lobby and exit passageway for stairs 1 and 2. The Code permits street floor lobbies serving as exit passageways to be occupied by newsstands, candy and tobacco stands, information booths or similar occupancies. These must be constructed of noncombustible materials and limited to 5 percent of the net floor area of the lobby. In addition, they may not restrict the required clear width of the lobby at any point. If the Information Center proposed for the Plaza Level lobby meets the foregoing requirements, it will be permitted by Code. Restrictions should be made, however, on the use of flammable material such as paper storage or files.

All decorative material used in exit passageways on the street floor lobby or skylobby must meet the requirements of a Class A Building; flame spread rating from 0 to 25 and smoke developed rating below 25. Carpeting on floors in such spaces must meet the foregoing requirements and must be of noncombustible material.

Since the skylobby floors are open to the floors above and below by escalator wells which do not serve as required means of egress, the upper level was protected by means of 1 1/2 hour rated automatic fire shutter. If this shutter is deleted, as has been proposed, fireproof self-closing doors

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with a 1 1/2 hour rating may be used in lieu thereof. The use of these doors in an open position held by a fusible link has been requested from the Building Department for a similar condition at the General Motors Building. This request, however, has been denied. We would suggest, therefore, that this condition remain as designed or be provided with the F.P.S.C. doors, or install a fire shutter on the escalator.

The corridor of the skylobby should be considered the same as a corridor on any multi-tenant floor. The code restricts glass openings in walls of such corridors to 20% of the common wall between corridor and any room or space provided no panel exceeds 720 square inches in area. It is interesting to note, however, that the Code permits openings as large as 120 square feet (with no dimension greater than 12 feet) to a maximum of 25% of the length of wall where a wall is used as a fire division provided the proper opening protective (such as an automatic fire shutter) is installed. Since fire divisions require a 2, 3 or 4 hour fire rating, it would seem that if a 2 hour fire rated wall is used on the corridor of the skylobby, protected glass openings as noted above should be permitted. Normally, a question of this nature would be referred to the Board of Standards and Appeals for a ruling. In the case of the Trade Center, however, this action is precluded and the Port Authority will have to determine the degree of adherence to the Code that is desired.

We suggest that all this material be reviewed by members of your legal and insurance staff and a written directive be prepared for guidance of our office, MYA, ARCOP and other architects involved in tenant work.

Cordially,

EMERY ROTH & SONS

JOSEPH H. SOLOMON

JHS:MS

cc-K. Sarota/MYA
H. Roberts/PHYA
L. Kornblath/LKA
J. Versalle/PRS
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